

REMARKS

I. Introduction

With the addition of new claim 28, claims 15 to 28 are pending in the present application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

Applicant notes with appreciation the acknowledgment of the claim for foreign priority and the indication that all certified copies of the priority documents have been received.

Applicant thanks the Examiner for considering the previously filed Information Disclosure Statement, PTO-1449 paper and cited references.

II. Allowable Subject Matter

Applicant notes with appreciation the indication of allowable subject matter contained in claims 20 to 22. In this regard, the Examiner will note that each of claims 20 and 21 has been rewritten herein in independent form to include all of the limitations of its respective base claim and any intervening claims. It is therefore respectfully submitted that claims 20 and 21 are in condition for immediate allowance. Claim 22 depends from claim 21 and is therefore also believed to be in condition for immediate allowance.

III. Correction of Typographic Errors

The Examiner will note that the preamble of each of claims 16 to 19 and 23 to 27 has been amended herein without prejudice to correct a typographic error to change "fuel injection valve" to --fuel injector--.

IV. Rejection of Claims 15 to 19 and 23 to 27 Under 35 U.S.C. § 103(a)

Claims 15 to 19 and 23 to 27 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Nally et al., U.S. Patent No. 5,544,816, and Stringfellow, U.S. Patent No. 6,053,425. It is respectfully submitted that the combination of Nally et al. and Stringfellow does not render unpatentable the present claims for the following reasons.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. *In re Rijckaert*, 9

F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish *prima facie* obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Claim 15, as amended herein without prejudice, recites, *inter alia*, that the valve closing element and the valve seat element are configured to reverse the direction of fuel flow between the through hole of the valve closing element and the at least one outlet opening. Neither Nally et al. nor Stringfellow discloses, or even suggests, such an arrangement. With respect to the injector disclosed by Nally et al., fuel flows through the inside of an armature 22, which is part of an axially movable valve needle 24. As can be clearly discerned from Figure 1 of Nally et al., using the arrows 64/65 that indicate the fuel flow, the fuel exits in the region of the armature 22 and always flows from there, outside of the valve needle 24, to valve seat 40 in a conventional manner. The solid valve-closure section of the valve needle 24, which is situated away from the armature 22 and directly interacts with the valve seat 40, does not have fuel flowing through it on the inside, and not in the area of a sealing seat plane at the level of the valve seat 40. This being the case, there is therefore no reversal of the direction of fuel flow between a through hole of adjustment tube 14 and at least one outlet opening.

Stringfellow purportedly discloses a typical fuel injector for directly injecting diesel fuel into the combustion chamber of a self-igniting internal combustion engine. The valve needle 12 is solid and thus lacks a through hole. Accordingly, Stringfellow fails to disclose, or even suggest, that a valve closing element and a valve seat element are configured to reverse a direction of fuel flow between a through hole of the valve closing element and at least one outlet opening.

In view of the foregoing, it is respectfully submitted that the combination of Nally et al. and Stringfellow fails to disclose, or even suggest, all of

the limitations recited in claim 15. It is therefore respectfully submitted that the combination of Nally et al. and Stringfellow does not render unpatentable claim 15.

As regards claims 16 to 19 and 23 to 27, which ultimately depend from claim 15, it is respectfully submitted that the combination of Nally et al. and Stringfellow does not render unpatentable these dependent claims for at least the same reasons given in support of the patentability of claim 15. *In re Fine, supra* (any dependent claim that depends from a non-obvious independent claim is non-obvious).

V. New Claim 28

New claim 28 has been added herein. It is respectfully submitted that new claim 28 adds no new matter and is fully supported by the present application, including the Specification. Since claim 28 depends from claim 15, it is respectfully submitted that claim 28 is patentable over the references relied upon for at least the same reasons given above in support of the patentability of claim 15.

VI. Conclusion

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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